Detailed Executive Briefing

Information Technology and Intelligent Transportation Systems 2003-2008 Strategic Plan

Presented by:

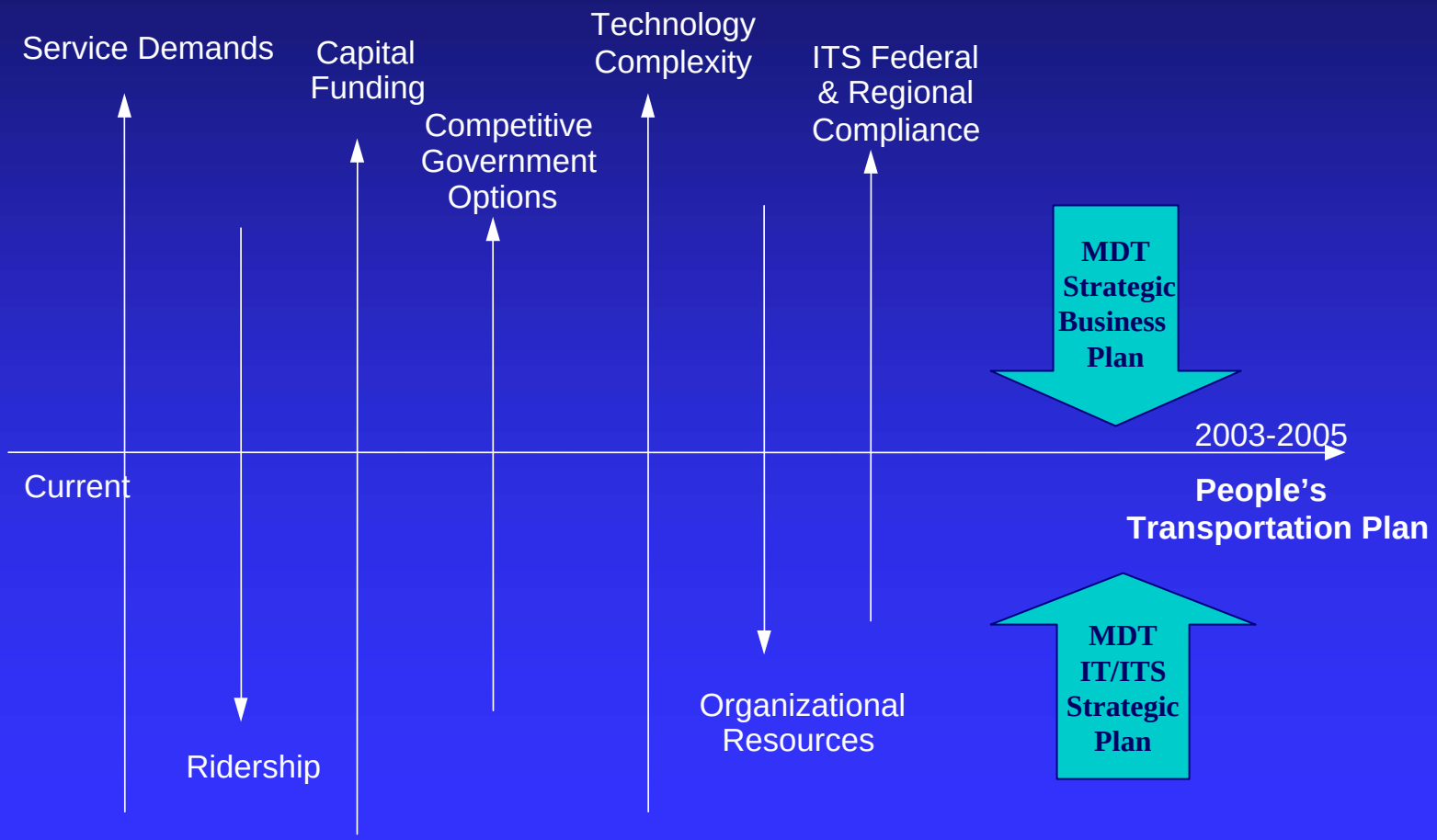
Center for Urban Transportation Research
and Palisades Group USA

February 24, 2004

Overview

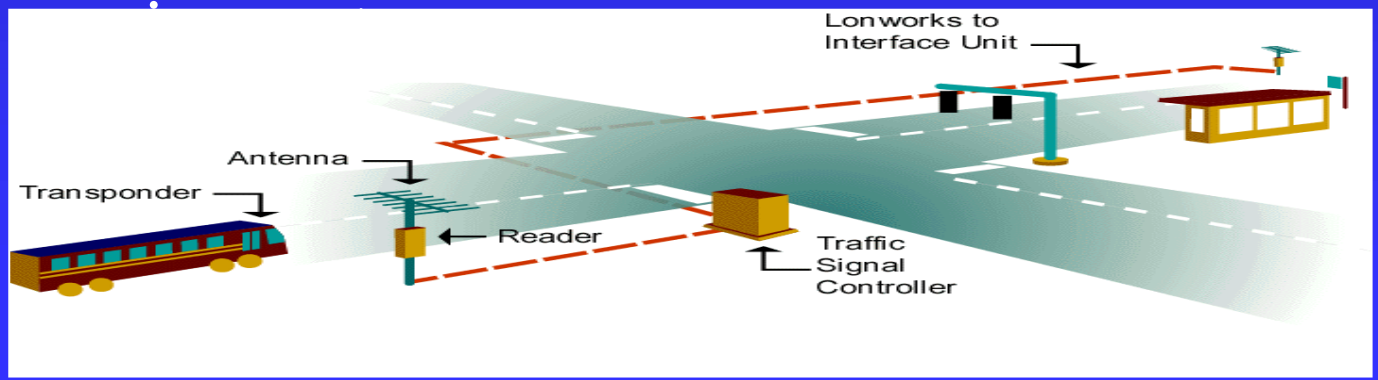
- Update on IT/ITS 2003-2008 Strategic Enterprise Plan
- Review
  - Opportunities & Demands
  - Business-Driven Approach
  - Scope and Objectives
  - Benefits
- IT Achievements
- Target Architectures
- Organizational Impact: Participation and Support
- Key Findings
- Next Steps

Current Transit Opportunities & Demands



IT/ITS 2003-2008 Enterprise Strategic Plan Scope and Objectives:

- To provide a road map for IT department support of MDT business units.
- Provide necessary framework to deliver ITS elements of The People's Transportation Plan
- Ensure MDT accordance with the FTA Policy on National ITS Architecture and Triennial Review



FTA's National ITS Architecture Policy Requirements

- Section 5206(e) of TEA-21 requires that all ITS projects funded through the Highway Trust Fund be in conformance with the National ITS Architecture and applicable standards

- Grantees using federal funds for ITS projects in an area with a Regional ITS Architecture must self-certify compliance with the Federal Policy

FTA's National ITS Architecture Policy Requirements (cont'd.)

- Assessment and Technical Assistance provided by FTA in April-August 2002
- Findings and Conclusions support MDT efforts to develop an IT/ITS Strategic Plan
- IT/ITS Plan would define an enterprise-wide architecture for data-driven IT/ITS projects as a fundamental building block for fulfilling:
  - requirements of the FTA Policy
  - MDT's business needs

What Do We Mean by an Enterprise-wide IT/ITS Architecture?

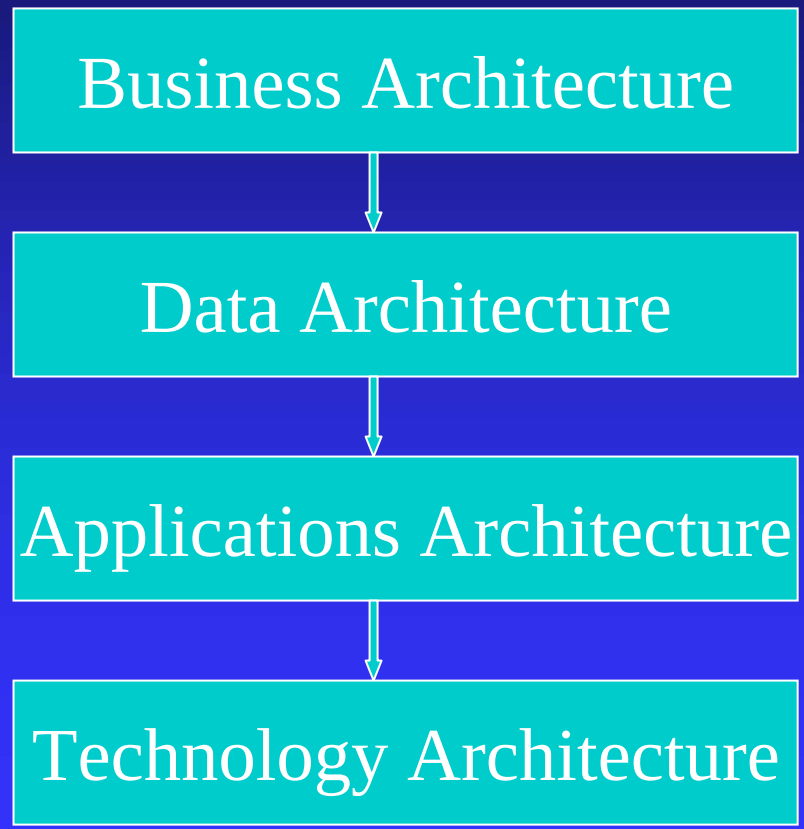
Definition: Architecture

- "Architecture" defines the pieces and how they relate (e.g., data, applications, processes)
- Consists of drawings and narratives that describe the data, applications, technology, and IT organization needed to support the business
- Without architecture, IT/ITS is expensive & risky

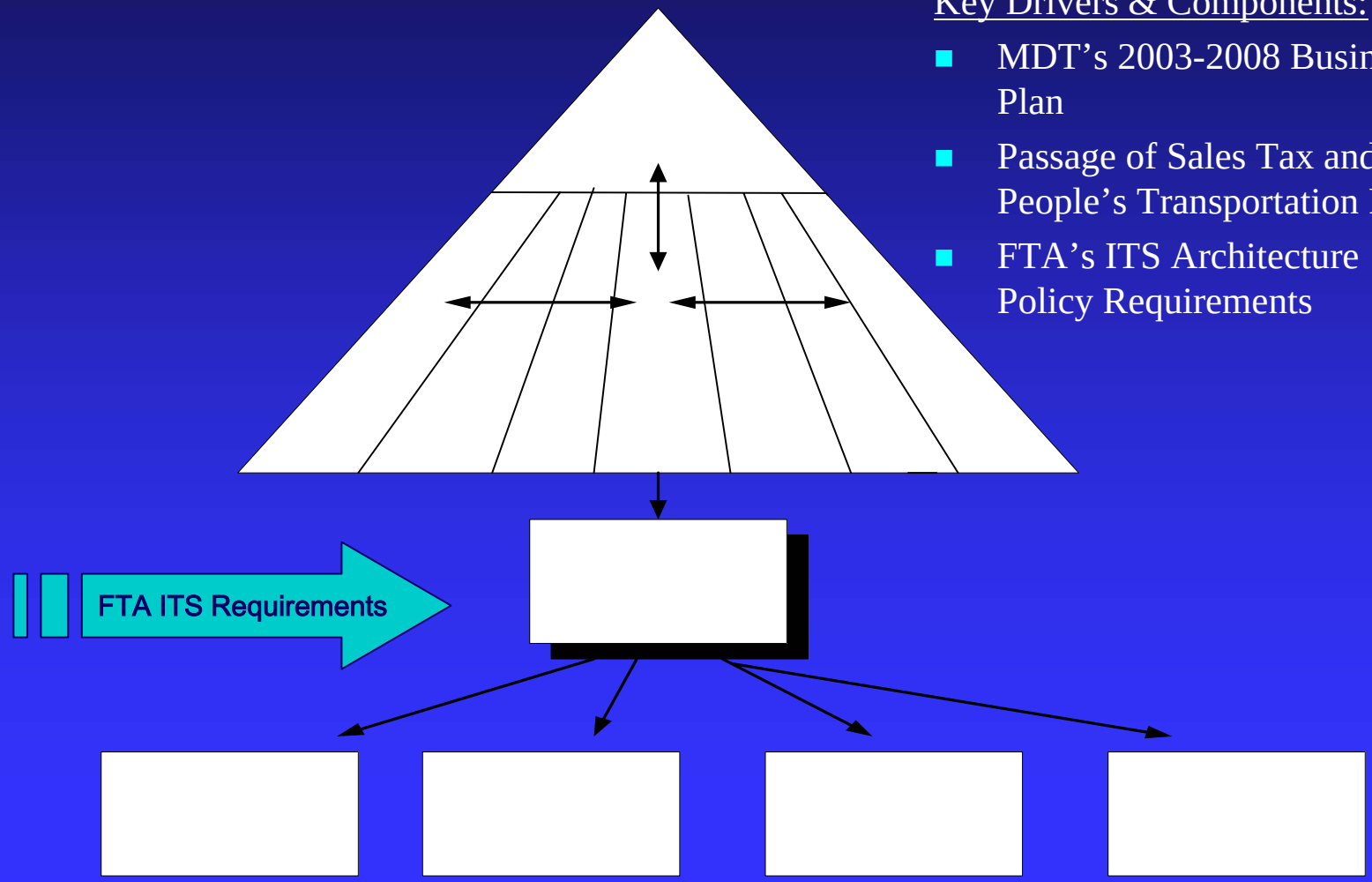
  (e.g., continuous custom building, inefficient replacements and costly odd features)

MDT IT/ITS Architecture Components

- Four layers, with additional on-board vehicle emphasis
- Business drives information & application needs
- Applications drive technology needs



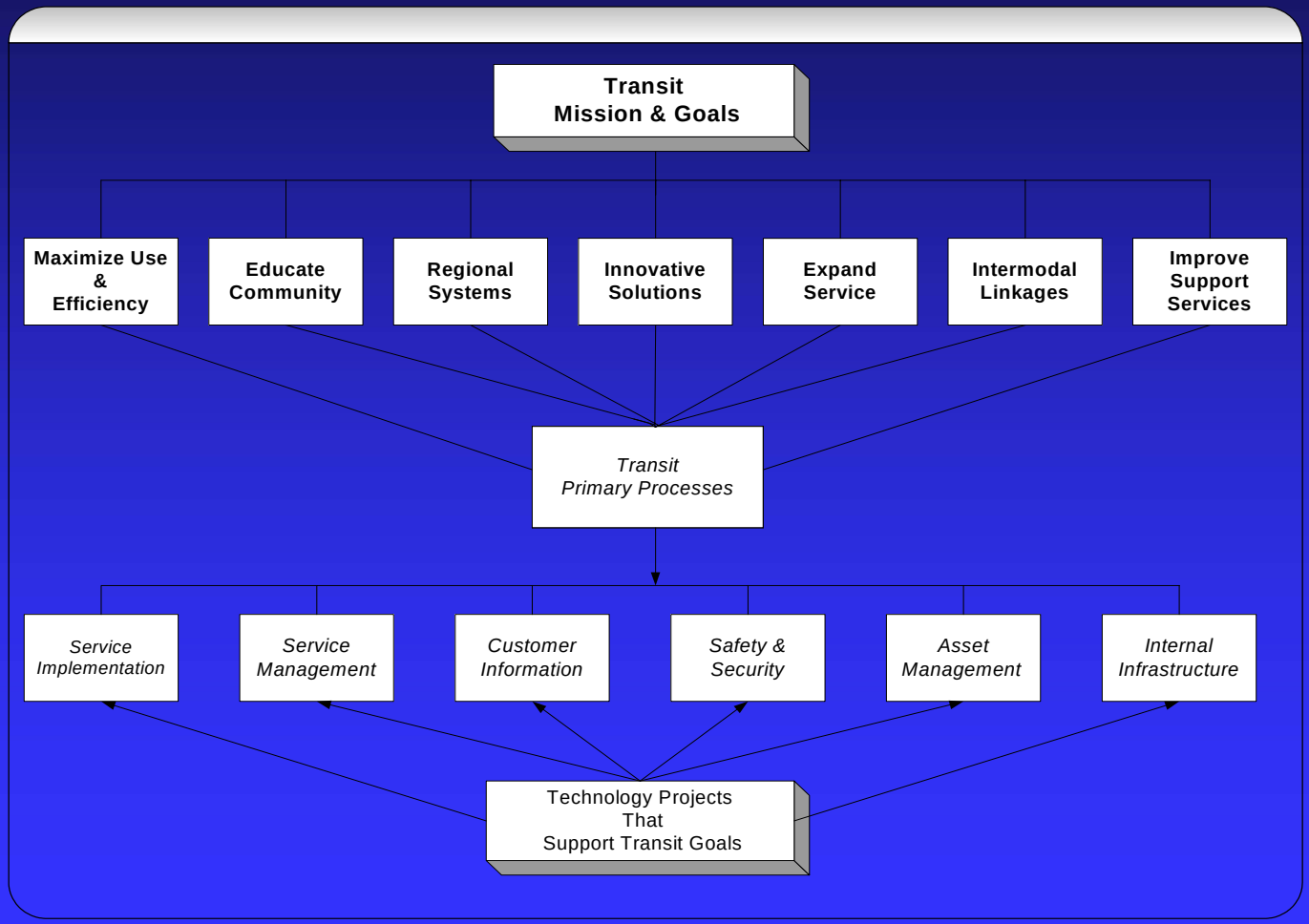
IT/ITS Plan Approach: Business-driven and based on National ITS Architecture policy



Key Drivers & Components:

- MDT's 2003-2008 Business Plan
- Passage of Sales Tax and People's Transportation Plan
- FTA's ITS Architecture Policy Requirements

Role of Technology:
Supports MDT's Goals and Processes



Strategic Planning Process

- Structured, customized approach for MDT
- Comprehensive and interactive
- Seven key tasks

Task 1:
Initiation
- **Scope**
- **Objectives**
- **Plan**

Task 2:
Business Model
- **Mission, Goals**
- **Current Org**
- **Strategies**
- **Processes**

Strategic Planning Process (cont.)

Task 3: Current IT
- Organization
- Processes
- Hardware/Software
- Tech trends

Task 4: Target Data/Application Architecture
- Architectures
- Applications
- Strategies

Task 5: Target Technology Architecture
- Hardware/Network
- System Software
- On-Board

Task 6: IT Organization
- Processes
- Skills
- Issues
- Recommendations

Strategic Planning Process (cont.)

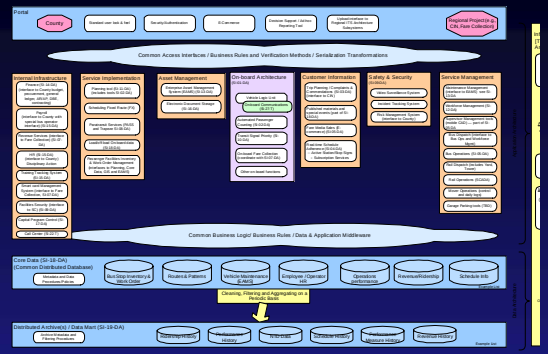
Task 7:
IT/ITS Strategic Plan

- **Workshops and Tools**
- **Enhanced Documentation**
- **Plan Summary Report**
- **Plan Detailed Report**
- **ITS Strategic Plan**
- **IT/ITS Architecture and Technical Appendices**
- **Executive Presentation**

MDT 2003-2008 IT/ITS Strategic Plan is based on fundamental precepts:

- Need for superior management and support of IT will increase as MDT's service demands grow and as its business becomes increasingly complex
- IT is a critical infrastructure component necessary to MDT in attaining its goals and demonstrating performance
- IT affects every transit business process and organization within MDT
- Current advances in IT/ITS technologies can provide MDT with opportunities to improve and grow services more effectively than ever before

IT/ITS Plan Helps Align Business Opportunities with Business Systems



- Understand external environment (customers and business events) and its effect on MDT's business
- Business activities and information required to satisfy a business event were identified and modeled into a related set of systems (Enterprise Architecture Plan or EAP)
- The EAP communicates a better understanding of overall MDT systems integration needs
- The EAP is the key vehicle for linking the business strategy to systems strategy (aligning IT with the business)

Benefits

- Good Business Sense
  - Guide MDT IT policy and process to better manage procurement and implementation of IT and ITS investment as it moves forward to support PTP
  - Provide a baseline blueprint for IT and ITS systems to work together
  - Provide a living document for migration planning
- Policy Compliance: Assist MDT to meet requirements of the Florida Regional Architecture and FTA Policy
  - Supports systems engineering process

Current IT Environment

- Significant success with 2000-2002 IT Plan
- Need for additional updating and expanding IT/ITS infrastructure
- Need to minimize “stove pipe” applications
- Gartner Group Findings

Key IT Accomplishments

Goal #1: Y2K Readiness

- ✓ Successfully transitioned to the Year 2000 and created a Disaster Recovery Plan

Goal #2: Improved Network Infrastructure

- ✓ New & Expanded Email Services
- ✓ Provided Enhanced Voice and Data Communications Services across MDT
- ✓ Adopted Client/Server Technology and Extended Network Browser Capabilities

Key IT Accomplishments (cont'd)

Goal #3: Improved Application Infrastructure and Environment

- ✓ Upgraded Systems
- ✓ Implemented new systems
- ✓ Initiated new systems projects and RFP's

Goal #4: Timely and Consistent IT Service

- ✓ New procedures and performance measures
- ✓ Improved Call Center & help desk support

Key IT Accomplishments (cont'd)

Goal #5: Efficient Management of IT Resources

- ✓ Adopted Standard Application Tool Sets
- ✓ Implemented Cost Control Measures
- ✓ Implemented new Policies and Procedures

Goal #6: Training Program for Users and IT Staff

- ✓ Provided training to MDT staff on basic computing skills, Word, Outlook, etc.
- ✓ Provided technical training to IT staff on GIS, Oracle, LAN support and other new tools

IT Performance Measures

- Baseline completed in 2003 (Gartner)
- Benchmarking to composite peer agencies showed MDT had significantly lower costs for IT services in most areas
- Total FTE's in IT were less than peer group
- MDT's IT group had above average customer satisfaction ratings

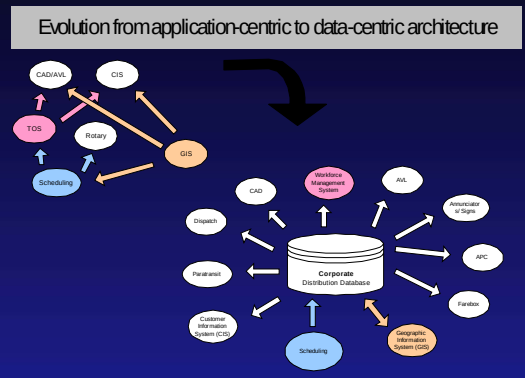
Moving Forward

Strategic Strategies and Initiatives

Target Architecture Goals

- Expand the reach of computing to both internal and external stakeholders
- Enable sharing of data and content
- Use applications that have the capabilities to publish, interact, or transact
- Use Internet technologies to connect employees, customers, and regional partners
- Improve MDT's ability to meet business and customer needs and to achieve operating efficiencies

Target Architecture: Key Strategies



- Data-Centric Approach to IT
- Disciplined Migration Path to Achieving MDT Goals and Implementing the PTP
- ”Buy vs. Build”
- Invest in IT Staff Development
- Strategic Budgeting
- Consistency with County Standards and Direction
- Use of Systems Engineering Approach for all New Projects

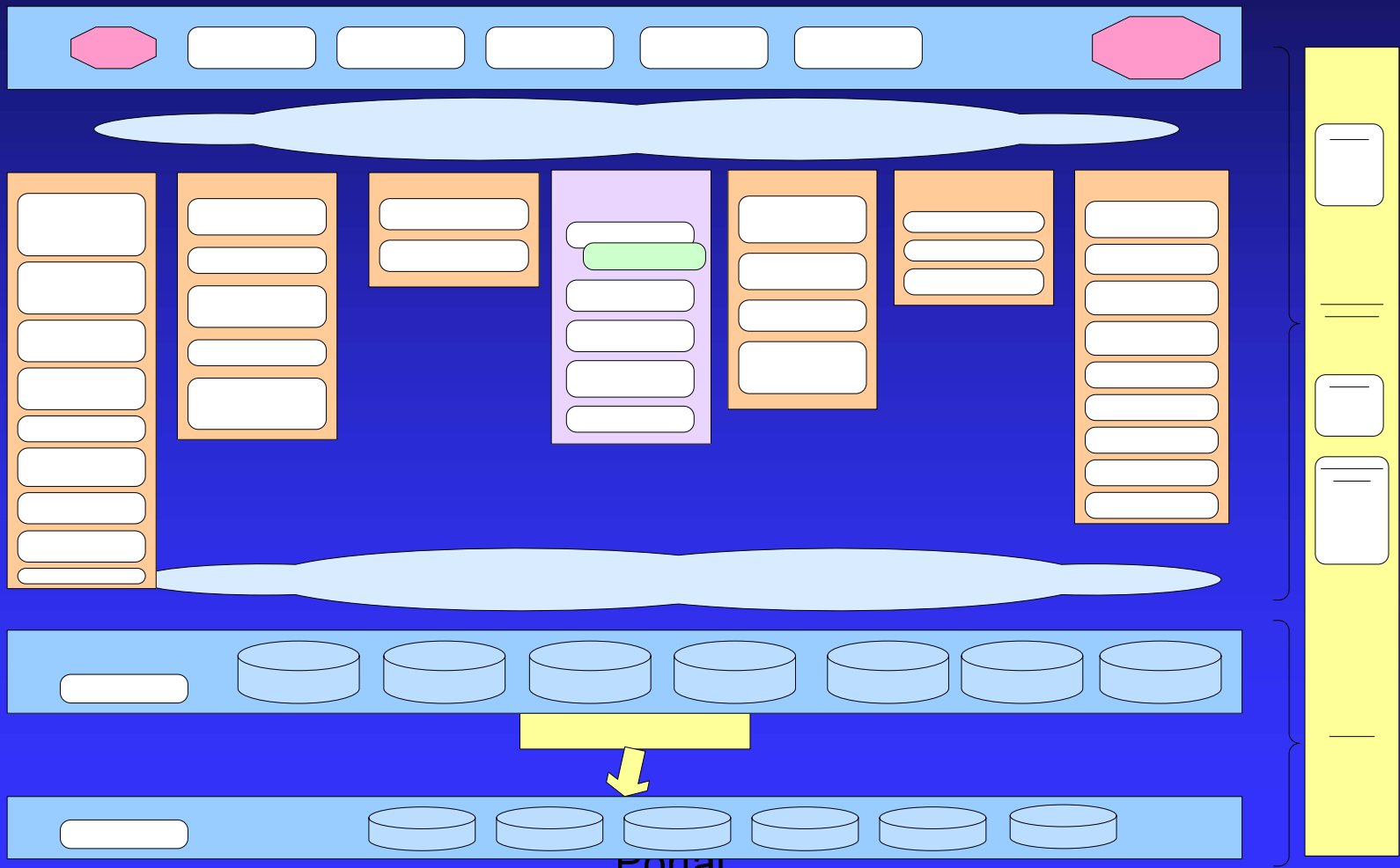
Key IT Guiding Principles

1. Data will be owned, shared, and controlled as a Transit asset. Applications will be developed using a cooperative process
2. Application initiatives will be guided by an established methodology using a systems engineering approach
3. Technology infrastructure will be developed to facilitate integration of data and systems
4. Secure network architectures will be employed

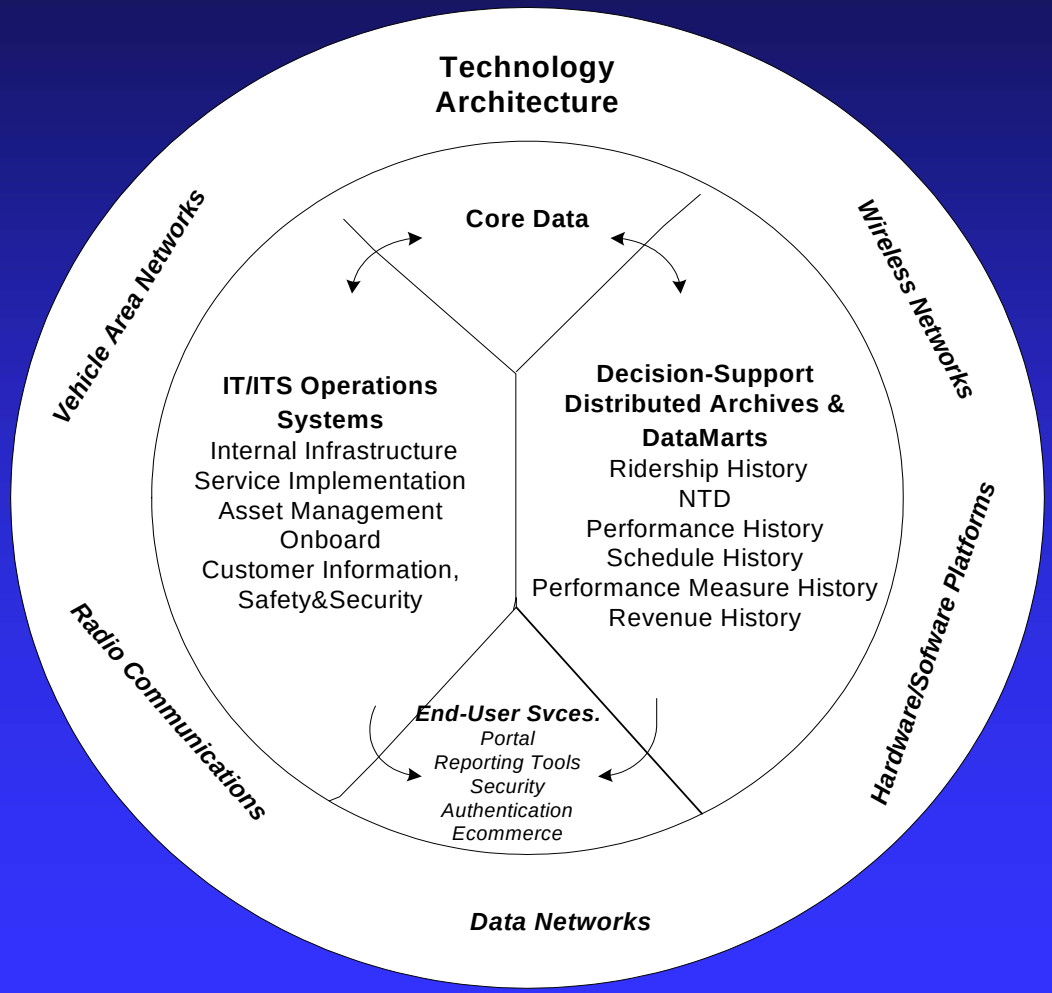
Key IT Guiding Principles (cont.)

- IT will focus on and be measured by the value of solutions delivered to internal and external stakeholders and customers
- IT will be a partner in reengineering and improving business processes related to IT systems
- IT will adhere to national and regional standards for transit architecture
- IT will insure recoverability to protect the continuation of the business
- Apply open systems concepts to insure portability, scalability, interoperability and compatibility of information technology systems

MDT Target Enterprise Architecture (Logical)

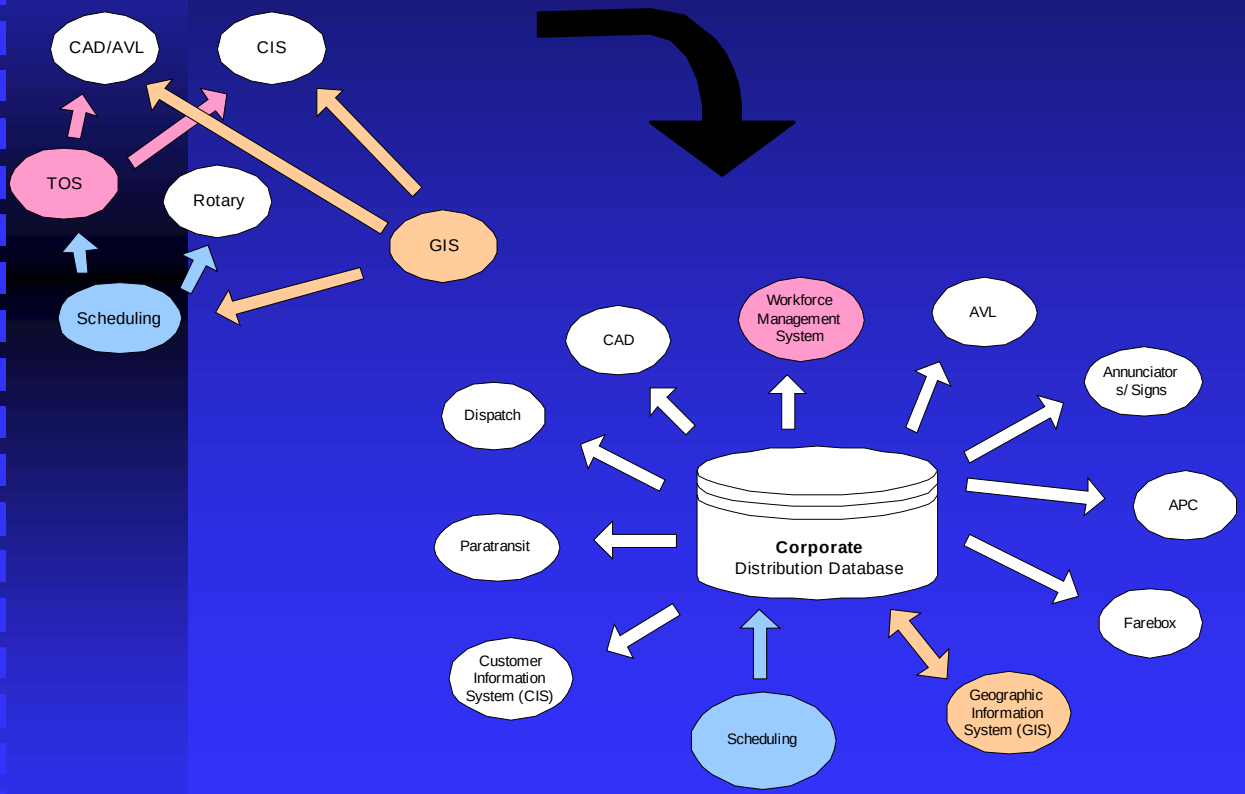


Target Architecture Supports MDT's Core Functions



Data and Applications - Evolution

Evolution from application-centric to data-centric architecture

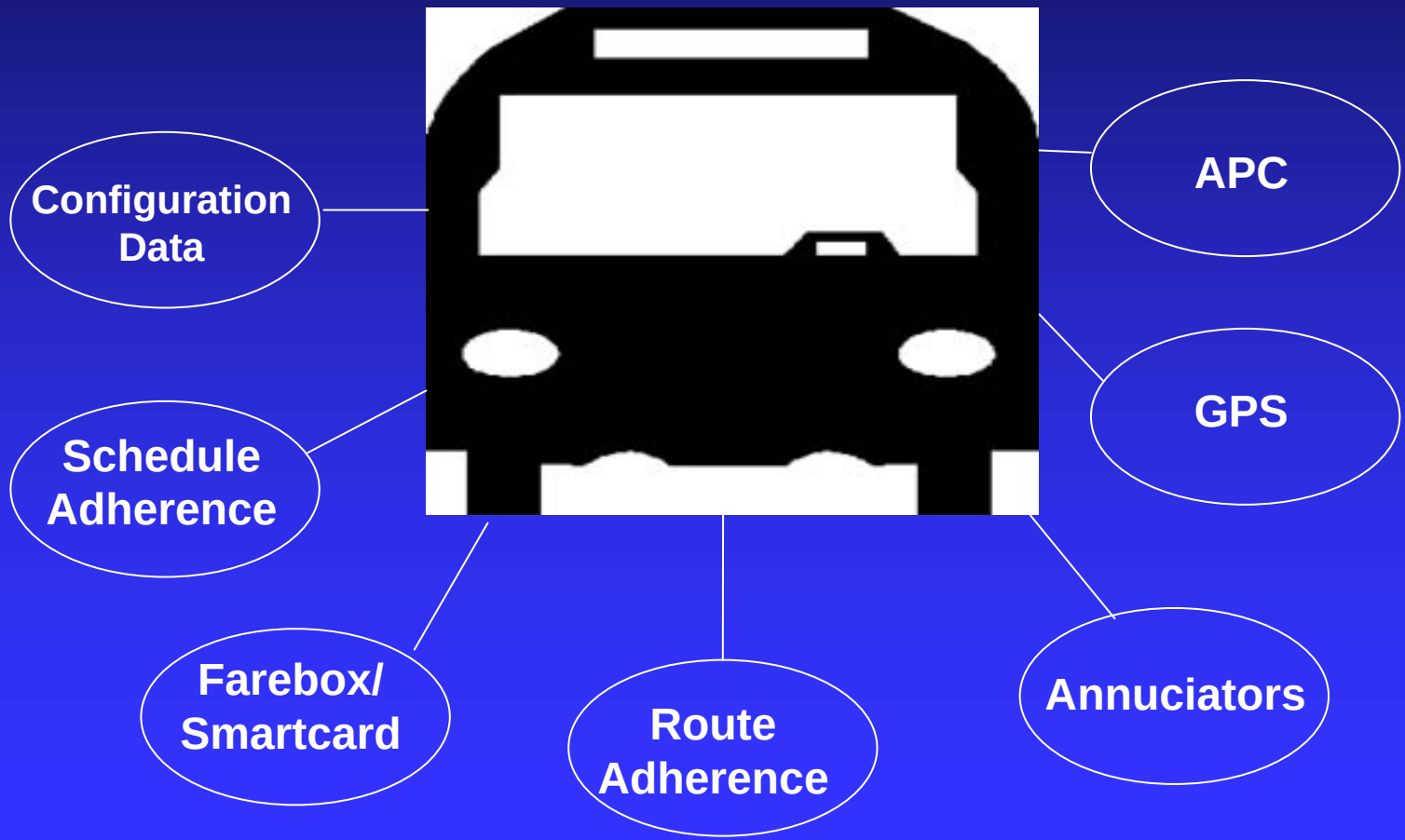


Key Strategies

1. Centralize and manage core data
2. Develop corporate-wide data policies prior to building the "enterprise information infrastructure"

On-Board Architecture:

Plan addresses coordination of onboard data and technology (examples below) with fixed-end systems



IT applications and the more transit-specific ITS applications are presented together because they both:

- Are driven by MDT's goals & business environment
- Use and impact the Technology infrastructure
- Need to be integrated to exchange needed data
- Drive the design and use of the Architecture
- Should be planned, implemented and operated using the same IT goals, guiding principles and standards
- Support users that would like to learn and use the same graphical user interface, data query, analysis and reporting tools, whether they are querying a traditional IT dataset or an ITS derived real-time dataset

Data and Application (19) Initiatives

Number	Data and Application Strategic Initiatives
SI-01-DA	On-Board Bus Infrastructure and Replacement
SI-02-DA	Automated Passenger Counting
SI-03-DA	Customer Information Network
SI-04-DA	Real-time Information
SI-05-DA	Bus Traffic Control Management
SI-06-DA	E-commerce
SI-07-DA	Fare Collection
SI-08-DA	Paratransit
SI-09-DA	Safety & Security
SI-10-DA	Traffic Signal Prioritization (TSP)
SI-11-DA	Scheduling Enhancements and Planning tools
SI-12-DA	Workforce Management (TOS replacement)
SI-13-DA	EAMS – Materials Asset Management/Procurement
SI-14-DA	Finance (GL/AP/AR)
SI-15-DA	HR (Training, Payroll, Employee Information)
SI-16-DA	Electronic Document Storage
SI-17-DA	Capital Project Control
SI-18-DA	Core Data Management
SI-19-DA	Decision Support Tool / Datamart

Technology (7) Initiatives

	Technology Architecture Strategic Initiatives
SI-21-T	Data Center Systems Environment Modernization
SI-22-T	Desktop Support and Configuration Standardization
SI-23-T	IT Service Model and Operational Procedures
SI-24-T	Distributed Network Design
SI-25-T	Network and System Management
SI-26-T	Quality Assurance / Application Development Environment
SI-27-T	On-Board Communications / Integration with Back-End Systems

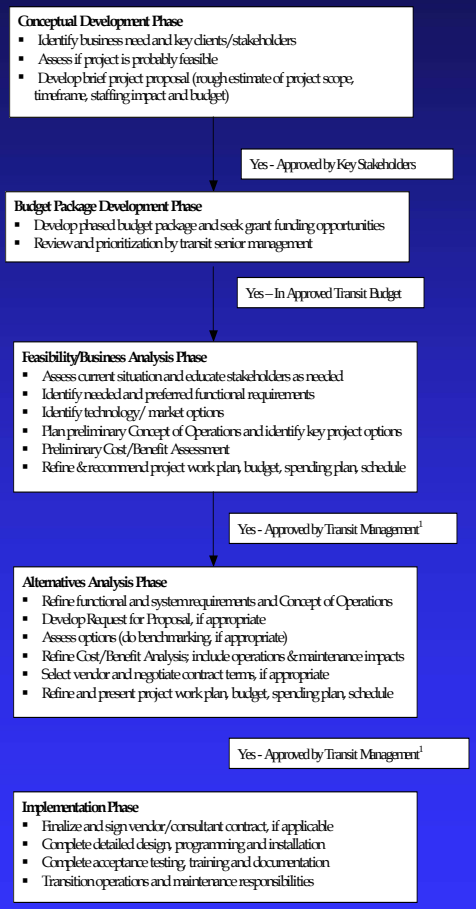
Organizational (8) Initiatives

	Organizational Strategic Initiatives
SI-31-O	Administrative Planning
SI-32-O	Policy Development and Standards
SI-33-O	Service Management
SI-34-O	Project Management
SI-35-O	Business Process Reengineering
SI-36-O	Skills Planning and Training Program
SI-37-O	Target Organization / Transition Management
SI-38-O	IT/ITS Strategic Planning

Examples of Administrative Planning Initiatives

- Implement strategies for improving operations and maintenance budget forecasts
- Increase grant funding
- Create/Update job classifications given the changing roles with technology
- IT Capital Project Approval Process
  - Set IT priorities at agency-wide level
  - Increase agency awareness of plan & priorities

Recommended Capital Approval Process



- Improved agency-wide knowledge of transit's technology investments
- Priority setting from an agency-wide perspective
- Improved identification of additional stakeholders and project impacts
- Reduction in project risks via a phased approach (refines project scope, schedule and budget at each phase)

Project Management Initiatives

- Update and use a systems development methodology
- Develop projects in stages with significant client involvement. At a minimum:
  - Feasibility/Business Analysis
  - Alternatives Analysis
  - Implementation
- Acquire and use project management tools

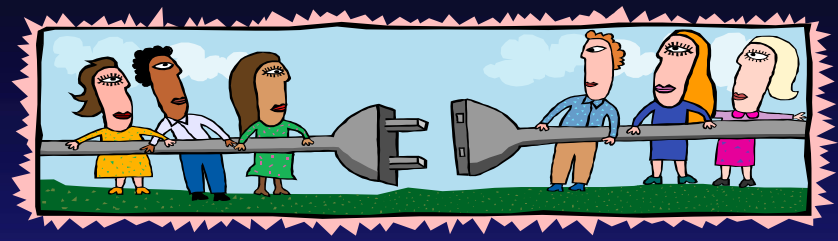
Key Findings

- A Shift in the Organizational Systems Paradigm – It is imperative that MDT move to a standards-based, interoperable systems environment
- Enterprise Perspective – Coordination and oversight at the highest level and a global vision of what needs to be accomplished
- Apply Guiding Principles to Provide Leadership in technology decision-making

IT/ITS 2003-2008 Strategic Plan Summary:

- Provide a roadmap through Enterprise Architecture Planning to set the direction of the IT Division in the future, in terms of:
  - Business activities
  - Information requirements
- Guide the investment of transit resources in IT and ITS systems for MDT over the next five years
- "Target" IT/ITS architectures to support the Business:
  - Data & Applications
  - Technology
  - On-Board
  - Organizational
- Identification of implementation initiatives to be pursued

Next Steps



1. Formally adopt the IT/ITS 2003-2008 Strategic Plan
2. Expand the current MDT IT/ITS architecture toward the target architecture direction
3. Annually define and develop priority projects
4. Conduct model demonstrations and ‘proof of concept’ deployments
5. Invest in and institute formal IT Training program
6. Develop a process to insure continuous measurements to track performance and service level requirements
7. Review progress and fine-tune the Strategic Plan